REMARKS/ARGUMENTS

The amendment to claim 1 is an incorporation of the limitations of claims 7 and 8, which are now canceled, and the incorporation of a recitation regarding the pressure range under which the method is performed. The pressure range is supported in the specification at page 4, paragraph 12, lines 27-29. New claims 19, 20 and 21 find support in the specification at page 5, paragraph 17, lines 22-25. No new matter is presented by this amendment, and entry of the amendment and reconsideration of the application are respectfully requested in view of the following remarks.

Objection to the Specification

The belief expressed in the examiner's remarks that the recitations in Claims 9 and 10 have insufficient antecedent basis in the specification is respectfully traversed. The inclusion of both water vapor and the vapor-form silane in the gas phase is disclosed at page 4, paragraph 13, lines 30-33, and the further inclusion of an inert gas, citing nitrogen and argon as examples, is disclosed at page 5, paragraph 14, lines 7-9.

Rejection of Claims 9 and 10 Under 35 U.S.C. 112

The inconsistencies in antecedent basis between claims 9 and 10 and claim 1 have been corrected by the above amendment.

Rejection of Claims Under 35 U.S.C. 102 and 103

The Leung et al. patent is removed from consideration as prior art by the enclosed DECLARATION OF WILLIAM R. ASHURST UNDER 37 CFR 1.131. In addition and alternatively, however, Applicants note that the invention as presently claimed is patentably distinct over the disclosure of Leung et al. in view of the latter's requirement that water vapor be excluded from the reaction chamber and process during the deposition of the "alkylsilane-containing molecules." Explicit statements to this effect appear in Leung et al. at column 5, lines 40-45, column 6, lines 53-58, and column 7, lines 7-11. Applicants' process (with the above amendment) is directly opposed to this directive by expressly including water vapor, and Applicants' experimental results indicate that a fully satisfactory product was achieved with

water vapor present as an integral and significant component of the vapor phase. Leung et al. offer no suggestion that this would occur and in fact teach away from it.

Applicants' invention is also patentably distinct over the Patnode patent for the same reason. Despite two detailed examples, there is no mention of the addition of water vapor to the vapor phase to which the glass surfaces were exposed. Also, the limitations added to claim 1 by the above amendment provide further distinctions -- the process disclosed Patnode is not conducted in a non-oxidizing atmosphere, since no attempt is made to evacuate or purge the atmosphere surrounding the surface prior to exposure to the treatment agent, and with no evacuation the pressure is atmospheric rather than reduced as recited in Applicant's claim 1. In addition, Applicants' new claims offer still more distinctions over the disclosure of Patnode by limiting the surface to one with exposed hydroxyl groups. The surfaces treated by Patnode are glass and various natural and synthetic textile fibers. None of these have exposed hydroxyl groups. In these claims, therefore, Applicants' invention operates on a surface with an entirely different surface chemistry. There is no suggestion that an alkylsilane treatment intended to make one surface water-repellent could be applied to another, chemically distinct, surface to give that surface an antistiction quality.

The Frey et al. patent falls short of suggesting Applicants' invention since the process disclosed in the Frey patent is not a vapor-phase deposition. The Frey et al. process uses liquid silane that is sprayed into a chamber containing the substrate to form a fog over the substrate. A fog of course consists of liquid droplets suspended in a gas, which in this case is air at 55% relative humidity. There is no suggestion here of vapor-phase deposition, much less a non-oxidizing atmosphere at reduced pressure.

The Mayer et al. paper is cited as a secondary reference to Leung et al. Since Leung et al. is removed from consideration by the Ashurst Declaration, the combination of Leung et al. and Mayer et al. is obviated as well. On its own, the Mayer et al. paper is far removed from the present invention, since the alkylsilane used by Mayer et al. is tridecafluoro-1,21,2,2-tetrahydrooctyltrichlorosilane (FOTS).

The Breen et al. patent publication is removed from consideration as prior art by the Ashurst Declaration.

The disclosure of Sato et al. focuses entirely on an alkylsilane that is chemically distinct from the dihalodialkylsilanes of Applicants' invention. The Sato et al. alkylsilane is HMDS, or hexamethyl disilane, and although other silanes are briefly mentioned, including dichlorodimethylsilane, the sole mention of the latter is a passing reference in column 12, with no supporting explanation of how it could be applied and what advantages or disadvantages it might offer in terms of the method of application. The Sato et al. disclosure also makes very brief mention of deposition methods and parameters, without providing any details other than one specific description in column 7, lines 30-47, and it is significant to note that this description applies only to HMDS.

Major differences are evident when one compares the description in column 7 of Sato et al. with the process parameters now recited in claim 1 of the present application and with the results set forth in the working example in the present application. The deposition in Sato et al. is performed in air at atmospheric pressure, and requires twenty hours of exposure time, all explicitly stated in the paragraph at lines 30-47. Applicants' process, by contrast, is performed in a non-oxidizing atmosphere and at a pressure well under atmospheric pressure (both explicitly recited in Applicants' claim 1), and full deposition is achieved in ten minutes (see the Example at page 6, paragraph 21, lines 26-27). These are clearly two different processes, and nothing in the Sato et al. disclosure suggests that effective deposition can be achieved in such a short period of time. Thus, the disclosure of Sato et al. does not suggest what Applicants are presently claiming, and the present invention is patentably distinct.

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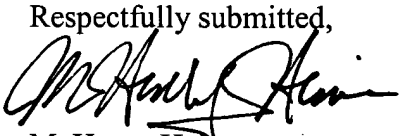
CONCLUSION

In view of the foregoing, Applicants believe all claims presented in the claim listing above recite allowable subject matter. Accordingly, reconsideration of the application and the issuance of a formal Notice of Allowance are respectfully requested. Should any matters remain that can be resolved by a conference with Applicants' attorney, the examiner is encouraged to telephone the undersigned at 415-576-0200.

Respectfully submitted,



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